

COMMITTEE ON GROUNDS AND BUILDINGS September 18, 2002

B. APPROVAL OF DESIGN, ROWLAND HALL SEISMIC IMPROVEMENTS, IRVINE CAMPUS

The President recommends that the Committee on Grounds and Buildings approve the design of the Rowland Hall Seismic Improvements, Irvine campus.

BACKGROUND

The Rowland Hall Seismic Improvements project was included in the University's Capital Improvement Program by action of The Regents at their November 2001 meeting approving the State-funded 2002-03 Budget for Capital Improvements. That action is being amended concurrent with this design item to recognize an expansion of scope and budget for the project. The project as originally approved addressed the seismic deficiencies through structural reinforcements within the interior of the building, resulting in major operational disruptions and interior repair costs. The project scope has been revised to reflect a new solution that will add new buttressing structures on the exterior of the east and west sides of the existing building to achieve the necessary seismic strength, while also providing 55,000 gsf of additional building space to support campus enrollment growth needs. The new solution results in a total budget of \$17,724,000 (at CCCI 4019), an increase of \$5,267,000 above the \$12,457,000 cost originally approved. Campus funds will provide \$429,000 for the increase in design costs, and state funds will provide all other costs. The expanded scope and budget of the project was approved by the state through the State Budget Act of 2002, and had been included in The Regents' July 2002 consideration of changes made through the State Budget process.

In May 2002, the appointment of Nabih Youssef and Associates as executive structural engineer for this project was administratively approved within the Office of the President.

Project Site

The project site for the existing facility is located in the campus core within the Physical Sciences Quad. The site is bounded by Steinhaus Hall to the north; Reines Hall to the south; Aldrich Park to the east; and Croul Hall to the west. This site is in conformance with the LRDP (see attached Site Plan).

Project Design

The Rowland Hall Seismic Improvements project includes the addition of two, 35-foot-wide buttresses to the east and west sides of the existing 195,000 gsf building to correct seismic deficiencies. The resulting buttress structures will be enclosed to provide approximately 39,000 asf within 55,000 gsf and will provide 32,955 asf of dry laboratory and office space for Mathematics and Physics and Astronomy, and 6,045 asf of departmental office/administrative support space for Physical Sciences Administration.

Rowland Hall is a six-story steel moment frame, 195,000 gsf square foot building constructed in 1968 with perimeter concrete walls from the basement to the first floor level. The seismic

evaluation identified deficiencies in the lateral force resisting system based on FEMA guidelines and reported that in event of a significant earthquake the building would sustain severe damage with possible partial collapse due to failure of the brittle beam-column moment connections.

The east and west elevations of the existing building are windowless, so the new construction will not affect existing fenestration. The addition of a new concrete slab area between the new frames at each floor level will provide further lateral stability. Also, correction of discontinuities in the diaphragms in the existing building will take place on the second through fifth floors, in unused areas originally designed as mechanical chases, with the addition of cast-in-place concrete panels. These new panels will transfer diaphragm forces across the shafts to the new moment frames. There are also five existing moment frames in the mechanical penthouse that will be independently strengthened (see attached Elevations and Renderings).

The design of Rowland Hall Seismic Improvements has been reviewed in accordance with University policy by an independent design consultant, independent seismic/structural consultant, and an independent cost estimator.

The campus Office of Design and Construction Services will manage the project. Outside consultants and testing agencies will be utilized as necessary. The Associate Vice Chancellor, Design and Construction Services will perform project oversight.

Environmental Impact Summary

In accordance with provision of the California Environmental Quality Act, this project is categorically exempt under Class 2, Seismic Reconstruction and Class 32, in-fill development projects.

(Attachments)

**PROJECT STATISTICS
ROWLAND HALL SEISMIC IMPROVEMENTS
CAPITAL IMPROVEMENT BUDGET
IRVINE CAMPUS
CCCI 4019**

<u>Cost Category</u>	<u>Amount</u>	<u>% of Total</u>
Site Clearance	\$ 748,000	4.2%
Building Construction	\$ 13,508,000	76.2%
Exterior Utilities	\$ 129,000	0.7%
Site Development	\$ 258,000	1.5%
A/E Fees ^(a)	\$ 1,272,000	7.2%
Campus Administration ^(b)	\$ 658,000	3.7%
Survey, Tests, Plans & Specifications	\$ 175,000	1.0%
Special Items ^(c)	\$ 246,000	1.4%
Contingency	\$ 730,000	4.1%
Subtotal	\$ 17,724,000	100.0%
Total Project ^(d)	\$ 17,724,000	100.0%

Statistics

Gross Square Feet (GSF) ^(e)	251,557
Assignable Square Feet (ASF) ^(e)	151,704
Ratio ASF/GSF (%): UC	60%
Building Cost/GSF	\$ 58.11
Building Cost/ASF	\$ 96.36

Comparable University Projects @ CCCI 4019

Rowland Hall is a seismic correction, addition, and renovation of an existing building. As such, a range of variables becomes problematic when attempting to make comparisons to the construction costs of other projects. This range of variables include:

- The existing building's age, condition, current use, type of construction and therefore choices of seismic rehabilitation strategies.
- The extent and scope of the project's addition program and changes in function.
- The magnitude of the renovation / restoration work needed due to seismic work.

Due to these circumstances, no comparable projects have been identified.

(a) Fees include executive Architect/Engineer basic services contract. This represents 8.68% of approved construction budget.

(b) Campus Administration includes Project Management and Inspection.

(c) Special Items include independent seismic review, value engineering/constructability reviews, wind tunnel study, laboratory consultant environmental impact report, as-built utility survey, agency review and building system/utility shutdowns.

(d) Current formal estimates verify that projected costs are within the approved budget.

(e) Gross square feet is the total area, including usable area, stairways, and space occupied by the structure itself. Assignable square feet is the program area.

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